



PHYSICS NMDCAT

TOPIC WISE TEST (UNIT-9)

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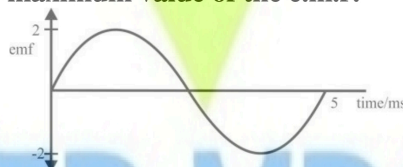
03418729745(WhatsApp Groups)

SAEED MDCAT TEAM

TOPICS:

✓ Electromagnetic Induction

- Q. 1** In step up transformer, voltage in the secondary increases and power in secondary
- A. Remain same B. Increases because current decreases
C. Decreases because voltage increases D. May increases if voltage remain same
- Q. 2** The magnetic flux linked with a coil is changed from 1 weber to 0.1 weber in 0.1 sec. the induced e.m.f is:
- A. 9V B. 0.009V
C. 10V D. 1/9V
- Q. 3** Lenz's law is a consequence of the law of conservation of
- A. Charge B. Momentum
C. Mass D. Energy
- Q. 4** Laminated core in a transformer is used to reduce
- A. Eddy current losses B. Hysteresis losses
C. Iron losses D. Heat losses due to resistance
- Q. 5** The power loss in transformer is due to
- A. Eddy current B. Magnetic hysteresis
C. Resistance of coils D. All
- Q. 6** The diagram shows how the e.m.f. of a simple generator varies with time. What is the frequency and the maximum value of the e.m.f?

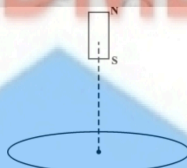


	Frequency / Hz	Maximum e.m.f. / V
A.	200	2.0
B.	200	4.0
C.	400	2.0
D.	400	4.0

- Q. 7** A step down transformer is used to reduce the voltage from 110 V to 11 V. The current in primary and secondary is 2 A and 18 A respectively. The efficiency of transformer is:
- A. 100% B. 80%
C. 90% D. 60%
- Q. 8** According to Faraday's law of electromagnetic induction
- A. Electric field is produced by time varying magnetic flux
B. Magnetic field is associated with a moving charge
C. Magnetic field is produced by time-varying electric flux
D. None of the above
- Q. 9** $V=20 \sin 200\pi t$, then frequency of this A.C voltage will be:
- A. 200π Hz B. 100Hz
C. 200Hz D. 50Hz



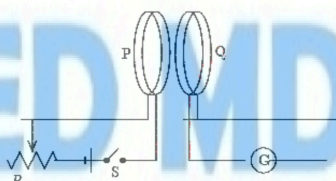
- Q. 10** Such a transformer in which voltage across secondary is less than the primary voltage, is called
- A. Step up transformer
B. Step down transformer
C. Ideal transformer
D. None of these
- Q. 11** Power loss in transformer is caused by
- A. Eddy current
B. Hysteresis loss
C. Resistance of coil
D. All of these
- Q. 12** A metallic square loop ABCD is moving in its own plane with velocity v in a uniform magnetic field perpendicular to its plane as shown in fig. An electric field is induced
-
- A. In AD, but not in BC
B. In BC, but not in AD
C. Neither in AD nor BD
D. In both AD and BC
- Q. 13** A transformer steps 220 V to 40 voltages. If the secondary turns are 40 and primary turns are:
- A. 20
B. 40
C. 120
D. 220
- Q. 14** The angular frequency of rotation of an A.C. generator is given by:
- A. $\omega = \frac{2\pi}{T}$
B. $\omega = \frac{2\pi}{f}$
C. $\omega = 2\pi T$
D. $\omega = \frac{2\pi f}{T}$
- Q. 15** During one cycle, the direction of flow of alternating current
- A. Changes once
B. Changes twice
C. Remains same
D. Not changes in magnitude
- Q. 16** A transformer has 100 turns in primary coil and 200 turns in the secondary coil. If 200 V emf is induced in the secondary coil then the input emf is
- A. 2000 V
B. 400000 V
C. 400 V
D. 100 V
- Q. 17** The rod of unit length is moving at 30° through a magnetic field of 1 T. If velocity of rod is 1 m/s , then induced emf in the rod will be given by
- A. 1 V
B. 0.25 V
C. 0.5 V
D. 0.6 V
- Q. 18** In a step up transformer the turn ratio is 1:2. A Leclanche cell (emf = 1.5 V) is connected across the primary. The voltage across the secondary is:
- A. 3 V
B. 0.75 V
C. 1.5 V
D. Zero
- Q. 19** A coil is placed near a magnet. Emf will be induced in it when
- A. Area of coil is changed
B. Coil is rotated
C. Magnet which was placed at a distance is moved closer to it
D. All of these
- Q. 20** Unit of induced emf is
- A. Volts
B. Ampere
C. Newton
D. Joule
- Q. 21** A magnet falls with its S-pole along the axis of ring. The current generated is And acceleration is



- A. Clockwise, $> g$
C. Anticlockwise, $> g$
B. Clockwise, $< g$
D. Anticlockwise, $< g$
- Q. 22** The maximum value of induced emf in a coil rotating in magnetic field does not depend on
A. The resistance of coil
C. The area of the coil
B. The number of turns in the coil
D. Rotational frequency of the coil
- Q. 23** A transformer is used to
A. Convert DC into AC
C. Obtain the required DC voltage
B. Convert AC into DC
D. Obtain the required AC voltage
- Q. 24** A straight copper wire is moved in a uniform magnetic field such that it cuts the magnetic lines of force. Then
A. Emf will not be induced
B. Emf will be induced
C. Sometimes emf will be induced and sometimes not
D. Nothing can be predicted
- Q. 25** When a coil of cross-sectional area A and number of turns N is rotated in a uniform magnetic field B with angular velocity ω , then the maximum emf induced in the coil will be
A. BNA
C. $BNA\omega$
B. $\frac{Ba\omega}{N}$
D. Zero
- Q. 26** The value of mutual inductance can be increased by
A. Decreasing N
C. Winding the coil on wooden frame
B. Increasing N
D. Winding the coil on china clay
- Q. 27** A conducting rod of length L is falling with velocity V in a uniform horizontal magnetic field B normal to the rod. The induced emf between the ends of the rod will be
A. $2 Bvl$
C. B/v
B. Zero
D. $\frac{Bvl}{2}$
- Q. 28** The turn ratio of a transformer is 2:3. If the current through primary is 3A, then current through load resistance is
A. 1A
C. 2A
B. 4.5 A
D. 1.5 A
- Q. 29** Which of the following will not generate emf?
A. Holding a magnet stationary inside a coil
B. Rotating a coil in a magnetic field
C. Rotating a coil around a stationary coil
D. Moving a bar magnet across a flat piece of metal
- Q. 30** Relative motion between a _____ and a conducting coil produces current in the coil
A. Magnet
C. Insulator
B. Iron bar
D. All of these
- Q. 31** The output of an a.c. generator has a
A. Sinusoidal shape
C. Triangular shape
B. Square shape
D. Straight line shape
- Q. 32** The frequency of voltage supplied by WAPDA to private homes is
A. 60 cps
C. 220 V
B. 1000 Watt
D. 50 cps
- Q. 33** The principle of an electric generator is based on
A. Faraday's law
C. Ampere's law
B. Coulomb's law
D. Lenz's law
- Q. 34** Unit of inductance is



- A. 1 Henry
C. Ω s
B. $V \text{ sA}^{-1}$
D. All of these
- Q. 35** The mutual inductance of a pair of coils is 2H, If the current in one of the coils changes from 10A to zero in 0.1s, the emf induced in the other coil is
A. 2V
B. 0.2 V
C. 20V
D. 200 V
- Q. 36** An emf of 5 V is induced in an inductance when the current in it changes at a steady rate for 3 A to 2 A in 1 milli seconds. The value of the inductance is
A. 5 mH
B. 5000H
C. 5 H
D. Zero
- Q. 37** The out put voltage of a transformer is 3 times the input voltage then turns ratio will be _____
A. 1/3
B. 3
C. 1
D. 6
- Q. 38** The north pole of a long horizontal bar magnet is being brought closer to a vertical conducting plane along the perpendicular direction. The direction of the induced current in the conducting plane will be
A. Horizontal
B. Vertical
C. Clockwise
D. Anticlockwise
- Q. 39** The armature of a generator consists of a flat square coil of side 4 cm and 200 turns. The coil rotates in a magnetic field of 0.75T. The angular speed so that a maximum emf of 1.6V is generated is _____
A. $\frac{20}{3} \text{ rad s}^{-1}$
B. $\frac{20}{3} \text{ rotations/s}$
C. $\frac{20}{3} \text{ rpm}$
D. None
- Q. 40** When current of coil changes from 8A to 2A in $3 \times 10^{-2} \text{ s}$, the emf induced in the coil is 2V. The self-inductance of the coil (in mH)
A. 1
B. 5
C. 20
D. 10
- Q. 41** Coils P and Q each have a large number of turns of insulated wire. When switch S is closed, the pointer of galvanometer G is deflected toward the left. With S now closed, to make the pointer of G deflect toward the right one could



- A. Move coil P toward coil Q
B. Open
C. Move coil Q toward coil P
D. Move the slide of the rheostat R quickly to the right
- Q. 42** A metal rod of length 30cm is moving at a speed of 0.5 ms^{-1} in a direction perpendicular to a 0.25T magnetic field. Find the emf produced in the rod.
A. $3.13 \times 10^{-2} \text{ V}$
B. $3.75 \times 10^{-2} \text{ V}$
C. $4.13 \times 10^{-2} \text{ V}$
D. $4.75 \times 10^{-2} \text{ V}$
- Q. 43** A coil of wire is arranged with its plane perpendicular to a uniform magnetic field of flux density B. when the radius of the coil increases from r_1 to r_2 in time Δt , then what is the emf induced in the coil?
A. $\frac{\pi B (r_2^2 - r_1^2)}{\Delta t}$
B. $\frac{\pi B (r_2 - r_1)^2}{\Delta t}$

C. $\frac{B(r_2^2 - r_1^2)}{\Delta t}$

$$\text{D. } \frac{\pi B(r_2^2 + r_1^2)}{\Delta t}$$

- Q. 44 The alternating current has frequency of 10^6 Hz, in such a way that time period for completion of cycle is
- A. $1\mu\text{s}$ B. $1.5\mu\text{s}$
C. 10^6sec D. 1sec
- Q. 45 The current in a coil of 1000 turns changed from 5A to Zero in 0.5 sec. If an average emf of 50V is induced during this interval, what is the inductance of the coil?
- A. 2H B. 3H
C. 4H D. 5H
- Q. 46 An alternating current or voltage _____
- A. Fluctuates off and on
B. Varies in magnitude alone
C. Changes its direction again and again
D. Changes its magnitude continuously and reverses its direction of flow after regularly recurring intervals.
- Q. 47 The shifting of _____ cause the earth quake
- A. Earth plates B. Spin motion of earth
C. Earth's magnetic field D. Both (A) and (B)
- Q. 48 The inertial seismometer are working on base of _____
- A. 1st law of motion B. 2nd law of motion
C. 3rd law of motion D. low conservation of charge
- Q. 49 The branch of physics in which we study the earth and crust is called
- A. Geography B. Mechanics
C. Sound D. Seismology
- Q. 50 The Seismometer which work on the base of faraday's law, convert vibrational energy to _____
- A. Draw the graph B. Voltage
C. Mechanical energy D. Both A and B

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Phy T-9

Physics - Unit #09						Date: _____
01- A	a → 08-	a → 15-	a → 22-	a → 29-	a → 36-	a → 43-
02- a	b → 09-	d → 16-	d → 23-	a → 30-	b → 37-	a → 44-
03- d	b → 10-	c → 17-	b → 24-	a → 31-	d → 38-	d → 45-
04- a	d → 11-	d → 18-	c → 25-	d → 32-	a → 39-	d → 46-
05- d	d → 12-	d → 19-	b → 26-	a → 33-	d → 40-	a → 47-
06- a	d → 13-	a → 20-	c → 27-	d → 34-	b → 41-	a → 48-
07- c	a → 14-	b → 21-	b → 28-	d → 35-	b → 42-	d → 49-
					Amman	b → 50-

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